

An asymmetrical network for coupling customer-premises Internet hosts such as personal computers to the Internet. The head end of a CATV system has a high-bandwidth connection to the Internet. The down link connecting the personal computers to the Internet is the cables provided by the CATV system; the up link is a telephone connection to the head end. A router is connected to the down link by means of a RF modem, to the up link by means of an analog modem, and to a LAN which is connected to the PCs. The router routes IP packets for the hosts that are received on the CATV cable to the hosts via the LAN; it routes IP packets from the hosts that are destined for the Internet to the head end via the telephone line. The asymmetrical network conserves IP addresses and addresses on the CATV cable by dynamically allocating the IP addresses for an RF modem's hosts and an address on the CATV cable for the RF modem in response to a request made by the RF modem via the telephone line. It further saves IP addresses by assigning a non-unique IP address to the router for use inside the LAN. When the CATV system fails, the asymmetrical network automatically begins to use the telephone line as both the up link and the down link, and when the CATV system is restored, the asymmetrical network automatically returns to using the CATV cable as the down link and the telephone line as the up link. A further feature of the asymmetrical network is that the head end components and the RF modem have IP addresses, so that standard TCP/IP protocols can be used to control the asymmetrical network.